

FIELDIANA

Botany

Published by Field Museum of Natural History

New Series, No. 10

FLORA OF PERU

J. FRANCIS MACBRIDE
AND COLLABORATORS

FAMILY COMPOSITAE: PART IV

TRIBE CARDUEAE

MICHAEL O. DILLON

Assistant Curator

Department of Botany

Field Museum of Natural History

Accepted for publication March 31, 1982

September 24, 1982

Publication 1335

CONTENTS

Tribe Cardueae	1
Key to Genera of Cardueae	2
I. <i>Centaurea</i>	2
1. <i>Centaurea melitensis</i>	2
II. <i>Cirsium</i>	4
1. <i>Cirsium vulgare</i>	4
III. <i>Silybum</i>	6
1. <i>Silybum marianum</i>	6
Acknowledgment	8

LIST OF ILLUSTRATIONS

1. <i>Centaurea melitensis</i>	3
2. <i>Cirsium vulgare</i>	5
3. <i>Silybum marianum</i>	6

Tribe CARDUEAE

Cardueae Cass., J. Phys. Chim. Hist. Nat. Arts 88: 155. 1819. TYPE: *Carduus* L.

Carlineae Cass., J. Phys. Chim. Hist. Nat. Arts 88: 152, 1819. TYPE: *Carlina* L.

Centaureae Cass., J. Phys. Chim. Hist. Nat. Arts 88: 154. 1819. TYPE: *Centaurea* L.

Echinopsidaeae Cass., J. Phys. Chim. Hist. Nat. Arts 88: 157. 1819. TYPE: *Echinops* L.

Cynareae Less., Linnaea 5: 128. 1830. TYPE: *Cynara* L.

Annual, biennial, or perennial herbs, rarely small shrubs; stems simple or branched, often spiny. Leaves alternate, usually pinnatifid or incised, rarely entire, the margins usually dentate, spinose, often densely tomentose or lanate. Capitula homogamous and discoid, the corolla lobes linear, equal to subequal, heterogamous and disciform or radiate, the marginal florets pistillate or neuter, the corollas ligulate or rarely 2-labiate, the inner florets with corollas tubular, deeply to shallowly 5-lobed, homochromous, yellowish or purplish, rarely white, the anthers basally sagittate or caudate, the auricles entire, irregularly laciniate, or marginally pinnatifid, the terminal appendages elongate, acute, the styles slightly thickened or with a ring of minute hairs near the point of bifurcation, the branches separate or connate, short, obtuse. Achenes \pm terete or compressed, obovate, unbeaked, sometimes umbonate, mostly glabrous or sparsely covered with one-celled trichomes; pappus a crown a multiseriate bristles, rarely paleaceous, or of uniseriate bristles or paleae fused basally.

The Cardueae *sensu lato* includes approximately 80 genera, primarily Eurasian, chiefly Mediterranean, and southwest to central Asia. Dittrich (1977) has proposed following Cassini's (1817, 1819) splitting of the tribe into presumably more natural units by removing the tribes *Echinopsidaeae* Cass.¹ (2 genera/ca. 120 species) and *Carlineae* Cass. (11 genera/ca. 90 species) and recognizing two subtribes within the Cardueae, the *Carduinae* Dumort. (40 genera/ca. 1,700 species) and the *Centaureinae* Dumort. (27 genera/ca. 813 species). While the delineation of natural taxonomic units is utilitarian, the fragmentation of an obviously monophyletic tribe seems unnecessary.

The tribe is represented in Peru by three species, all native to the Old World and adventive weeds in the New World.

This study was assisted by National Science Foundation Grant DEB-79-05078 (Alwyn H. Gentry, principal investigator).

¹Cited as *Echinopeae* Cass. by Dittrich (1977).

REFERENCES

- CASSINI, H. 1817. Cinarocephales. In Leurault, F. G. (ed.), *Dictionnaire des Sciences Naturelles*, 9: 226-227. Strasbourg & Paris.
- . 1819. Sixième mémoire sur l'ordre des synantherées, contenant les caractères des tribus. *J. Phys. Chim. Hist. Nat. Arts* 88: 152-159.
- DITTRICH, M. 1977. Cynareae-systematic review. In Heywood, V. H., et al. (eds.), *The Biology and Chemistry of the Compositae*, pp. 999-1015. Academic Press, London.

KEY TO GENERA OF CARDUEAE

1. Leaves without spines; achenes articulating laterally I. *Centaurea*.
1. Leaves spiniferous; achenes articulating basally 2.
 2. Phyllaries spine-tipped, lacking marginal or lateral spines II. *Cirsium*.
 2. Phyllaries spinescent, marginal or lateral spines present III. *Silybum*.

I. CENTAUREA

Centaurea L., Sp. Pl. 909. 1753. TYPE: *C. centaurium* L.

Annual or perennial herbs, rarely dwarf shrubs. Leaves alternate or basal, entire to pinnatifid. **Inflorescences** solitary or cymose-paniculate. **Capitula** heterogamous, disciform or radiate, or rarely homogamous, discoid; involucre cylindrical to globose; phyllaries imbricate, multiseriate, coriaceous or scarious, often spinose; receptacles plane, bristly; marginal florets sterile (sometimes with staminodes), the corollas funnel-form, deeply 5(-8)-lobed, \pm zygomorphic; disc florets hermaphrodite, the corollas tubular, deeply 5-lobed, yellow, violet, purple, blue, or white, the anthers basally sagittate, the styles bifid, separate or connate, often with a ring of short hairs below point of bifurcation, the branches linear. **Achenes** obovoid to oblong, compressed or tetragonal, glabrous or puberulent with unicellular trichomes of varying lengths, articulating laterally; pappus persistent or rarely caducous, of 2 to several rows of scabrid to plumose setae, or oblong to linear squamellae, the inner longer.

A genus of 500-600 species, primarily distributed in the Mediterranean region and southwest Asia, with a few from tropical Africa and North and South America. In Peru only the following introduced weed has been collected.

1. *Centaurea melitensis* L., Sp. Pl. 917. 1753. TYPE: Europe, exact locality and collector unknown (LINN, holotype, not seen, IDC Microfiche 117. 619: III. 1).

Annual or biennial herbs to 80 cm tall; stems erect, winged above, striate, arachnoid, crispate-puberulent. Lower leaves oblanceolate in outline, 10-15 cm long, 1.5-3.0 cm wide, lyrate-pinnatifid to sinuately lobed, apically obtuse, basally cuneate, the upper oblong to oblanceolate, 2-6 cm long, 0.5-2 cm wide, entire to irregularly undulate-dentate, decurrent on the stems, both sides green, crispate-puberulent, arachnoid, glandular-punctate. **Inflorescences** of solitary capitula at the tips of branchlets or weakly cymose. **Capitula** homogamous, discoid; involucre ovoid-globose, 8-12 mm wide, ca. 12 mm high; outer phyllaries ovate, 4-8 mm long, 2-3 mm wide, glabrous to arachnoid-tomentose, scarious, indurate, stramineous, apically and marginally spinulose, squarrose, the inner lance-ovate to lanceolate, 8-9 mm long, 1.5-2.0 mm wide, glabrous, scarious, stramineous, apically spinulose, all apices reddish; receptacles plane; corollas yellow, tubular, ca. 1 cm long, glandular, 5-lobed, the lobes 1-2 mm long, linear. **Achenes** oblong, 2.5-3.0 mm long, puberulent to glabrate; pappus multiseriate, the outer of narrow squamellae, 0.4-1.6 mm long, the inner of elongate scabrid setae, ca. 3 mm long. Chromosome numbers: $n = 11, 12, 18$.

This species is a native of Europe and North Africa and is an adventive weed in North and South America. It occurs in a wide range of habitats throughout Peru, but most frequently in disturbed areas. No vernacular names have been recorded for this species in Peru; however, it is known as "abre puño amarillo" in Argentina and "cizaña" in Chile.



FIG. 1. *Centaurea melitensis*. A, habit; B, floret; C, basal leaf. (A, B from Macbride & Featherstone 1029, F; C from Sagástegui & Araujo 7785, F.)

Centaurea solstitialis L. is the only other member of this genus, with yellow corollas, known to occur in South America (Argentina), and it is easily distinguished by its much larger involucreal spines (10–25 mm long).

CAJAMARCA. Contumazá: alrededores de Contumaza, 2,600 m, *Sagástegui et al.* 9856 (F, MO). CUZCO. Calca: alturas de Taray, 3,050 m, *Vargas* 4259 (F). JUNÍN. Tarma: 4 km W of Tarma, *Edwin & Schunke* 3890 (F); Tarma, *Macbride & Featherstone* 1029 (F). LA LIBERTAD. Trujillo: alrededores de Trujillo (Santa Rosa), 50 m, *Sagástegui & Araujo* 7785 (F, MO).

II. CIRSIUM

Cirsium Mill., Gard. Dict. Abr. ed. 4. 1754. LECTOTYPE:² *C. heterophyllum* (L.) Hill (*Carduus heterophyllus* L.)

Perennial or biennial herbs, rarely annuals; stems simple or branched, rarely acaulescent. Cauline leaves alternate, often decurrent, serrate or pinnatifid, the lobes dentate, spinose. Inflorescences solitary or corymbose to paniculate, rarely sessile among basal leaves. Capitula homogamous, discoid; involucre ovoid or globose; phyllaries multiseriate, imbricate, graduate, narrow, appressed basally, usually spinescent, sometimes vittate; receptacles flat to subconic, bristly; florets hermaphrodite (rarely functionally gynodioecious or dioecious), the corollas purplish, white, pinkish, or rarely yellowish, tubular, the limb symmetrical or oblique, 5-lobed, the lobes linear, the anthers basally caudate, the auricles fringed, the apices long-appendaged, the styles with a thickened, often hairy ring below the branches, the branches linear or filiform, subobtusate, connate except distally. Achenes ± oblong, gibbous, compressed or 4-angulate, articulating basally, smooth or costate, glabrous, truncate or umbonate apically; pappus bristles multiseriate, equal to subequal, plumose, affixed to basal annulus, deciduous in a ring or ± persistent.

A genus of 250–300 species of temperate Eurasia and North America, with several species becoming naturalized weeds. In Peru, only the European weed *Cirsium vulgare* is represented.

REFERENCE

AIRY-SHAW, H. K. 1938. On the correct names of three European species of *Cirsium*. Feddes Repert. Spec. Nov. Regni Veg. 43: 302–315.

1. *Cirsium vulgare* (Savi) Tenor, Fl. Napol. 5: 209. 1835–36.

Carduus lanceolatus L., Sp. Pl. 821. 1753. TYPE: Europe, exact locality and collector unknown (LINN, holotype, not seen, IDC Microfiche 117. 548: I. 4).

Cirsium lanceolatum (L.) Scop., F. Carniol. ed. 2. 2:130. 1772. (non *C. lanceolatum* Hill, Veg. Syst. 4: 27. 1762), *nom. illeg.*

Carduus vulgaris Savi, Fl. Pis. 2: 241. 1798. TYPE: not seen.

Cirsium vulgare (Savi) Airy-Shaw, Feddes Repert. Spec. Nov. Regni Veg. 43: 304. 1938, *nom. illeg.*, superfluous combination.

Annual or biennial herbs to 1.5 m tall; stems branched above, winged, arachnoid to spreading-hirsute. Cauline leaves lanceolate, to 25 cm long, to 10 cm wide, pinnatifid, the lobes toothed or lobed, all spinescent, decurrent for the entire internode, scabrous-hispid above, thinly white tomentulose to green and hirsute below. Inflorescences solitary to weakly corymbose or paniculate, pedunculate. Capitula homogamous, discoid; involucre obovoid, to 40 mm high, to 50 mm wide; phyllaries lance-linear, spinescent,

²Designated by Britton & Brown, Ill. Fl. N. U.S. ed. 2. 3: 548. 1913. Airy-Shaw (1938) has shown this taxon to be conspecific with *Cirsium helenioides* (L.) Hill (*Carduus helenioides* L.).



FIG. 2. *Cirsium vulgare*. A, habit; B, floret. (From Brunel 679, MO.)

sparsely arachnoid, the outer ca. 10 mm long, 1–2 mm wide, the inner to 5 mm long, 1–2 mm wide; corollas purple, tubular, 26–36 mm long, mostly 5-lobed, the lobes 5–6 mm long, linear. **Achenes** obovoid-elliptic, to 5 mm long, glabrous, apically truncate with an annular thickening; pappus bristles multiseriate, plumose, to 30 mm long, deciduous in a ring. Chromosome number: $n = 34$.

This species is native to Europe and naturalized throughout temperate regions of the world. It occurs throughout South America, from Ecuador to Argentina. In Peru, it is known by the following Quecha names, "al'q'u kiska" and "h lauli."

CUZCO. Anta: Santa Ana, El Chaccan, 3,493 m, *Brunel s.n.* (MO), Huaypo Grande, 3,711 m, *Brunel 679* (MO).

III. SILYBUM

Silybum Adans., *Fam. Pl.* 2: 116, 605. 1763. *Nom. cons.* TYPE: *Carduus marianus* L. = *Silybum marianum* (L.) Gaertn.

Annual or biennial **herbs**; stems erect from a basal rosette, simple or sparingly branched, unwinged. **Leaves** alternate, white veined or variegated, margins spinose. **Inflorescences** solitary. **Capitula** homogamous, discoid; involucre ovoid to subglobose; phyllaries multiseriate, imbricate, spiny-margined, strongly spinose; receptacles flat, densely setose; florets hermaphrodite, the corollas purple, tubular, the limb slightly expanded, deeply 5-lobed, the tube slender, the anthers shortly tailed, the style branches usually connate. **Achenes** subcompressed, obovoid-oblong, articulating basally, smooth, glabrous, the inner shorter, all connate basally, deciduous in a ring. Chromosome number: $n = 17$.

A genus of two species, with the following one, adventive throughout the New World.

REFERENCE

VARMA, P. N., S. K. TALWAR, AND G. P. GARG. 1980. Chemical investigations of *Silybum marianum*. *Pl. Med.* 38: 377–378.

1. **Silybum marianum** (L.) Saertn., *Fruct. et Semin Plant.* 2: 398. 1791. *Carduus marianus* L., *Sp. Pl.* 2: 823. 1753. TYPE: Europe, exact locality and collector unknown (LINN, holotype, not seen, IDC Microfiche 117. 549: III. 4).

Annual **herbs** to 2 m tall; stems erect, glabrous or slightly arachnoid-pubescent, striate. Basal leaves in a rosette, obovate, 10–50(–80) cm long, 5–15 cm wide, pinnatifid, glabrous or glabrescent, petiolate, the upper leaves sessile, auriculate-amplexicaul, spinescent. **Inflorescences** solitary. **Capitula** discoid; involucre globose, to 4 cm wide, 4–6 cm high; phyllaries basally ovate to lanceolate, widening abruptly to an ovate-subulate appendage distally, the outer 1–2 cm long, often lacking an appendage, the inner 4–5 cm long (including appendage), all ca. 1 cm wide, the margins and apices spinose, reflexed to erect; corollas ca. 30 mm long, the lobes ca. 6 mm long, linear. **Achenes** ovoid to obovoid, 6–8 mm long; pappus 15–20 mm long. Chromosome number: $n = 17$.

This species is widely distributed within Peru, primarily at elevations above 3,000 m. It is known throughout Latin America by many vernacular names, including "cardo, cardo manchado, cardo mariano, cardo blanco, cardo santo," and in Peru as "cardo de la alameda."

Silybum marianum has been used in homoeopathic medicine in India, where its seeds are used in the control of hemorrhage, jaundice, cirrhosis of the liver, and related liver and gallstone conditions (Varma et al., 1980). At present, no record exists of this plant species being used medicinally in Peru.

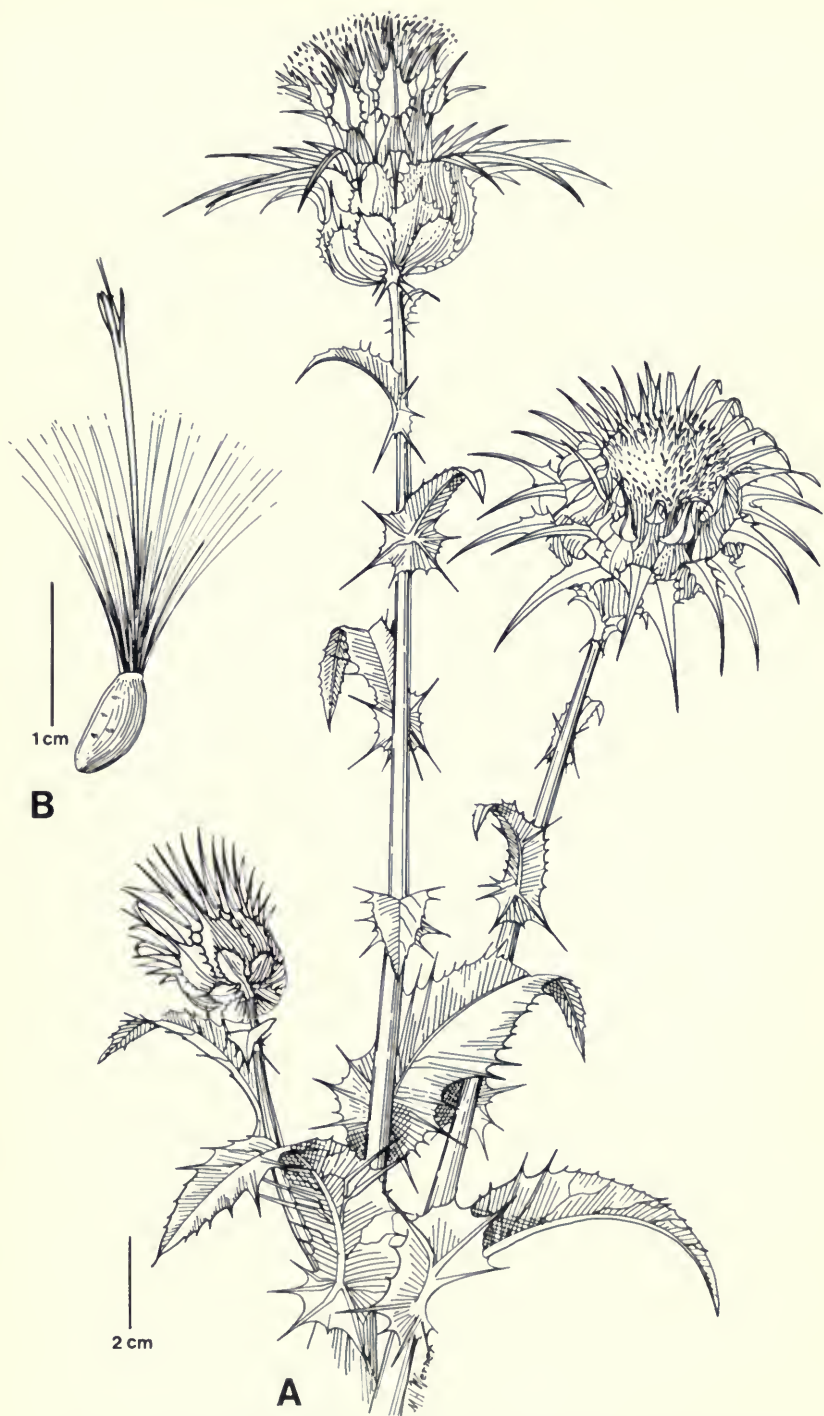


FIG. 3. *Silybum marianum*. A, habit; B, floret. (From Dillon & Turner 1569, F.)

CAJAMARCA. Cajamarca: ca. 16 km NE of Cajamarca, on road to Celendin, ca. 3,000 m, *Dillon & Turner 1569* (F, MO, TEX, USM). JUNÍN. Huancayo: 16.5 km W of Huancayo, *Soukup 2932* (F). LA LIBERTAD. Otuzco: Salpo, ca. 3,400 m, *López 1850* (F); Pataz: alrededores de Huancaspata, 3,100 m, *López & Sagástegui 8241* (MO). CERRO DE PASCO. Pasco: Huariaca, ca. 3,050 m, *Macbride & Featherstone 2406* (F). PUNO. Puno: Amantani, 3,900 m, *Aguilar s.n.* (MO).

ACKNOWLEDGMENT

Figures were prepared by Marlene Werner, Department of Exhibition, Field Museum of Natural History.

